

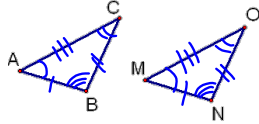
4.3 Congruent triangles

Congruent Triangles—same size and shape

$$\triangle ABC \cong \triangle MNO$$

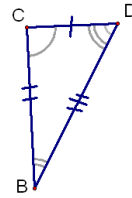
$$\begin{aligned}\angle A &\cong \angle M \\ \angle B &\cong \angle N \\ \angle C &\cong \angle O\end{aligned}$$

$$\begin{aligned}\overline{AB} &\cong \overline{MN} \\ \overline{BC} &\cong \overline{NO} \\ \overline{AC} &\cong \overline{MO}\end{aligned}$$



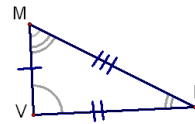
The corresponding parts of congruent triangles are congruent.

—"CPCTC"



What triangles are congruent?

$$\triangle CBD \cong \triangle VLM$$

If $\triangle THE \cong \triangle SAW$, what parts are congruent?

$$\angle T \cong \angle S$$

$$\angle E \cong \angle W$$

$$\angle H \cong \angle A$$

$$\overline{TH} \cong \overline{SA}$$

$$\overline{HE} \cong \overline{AW}$$

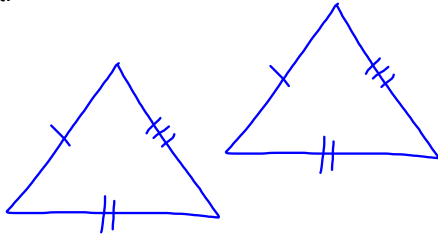
$$\overline{TE} \cong \overline{SW}$$

Reflexive $\triangle ABC \cong \triangle ABC$ Symmetric If $\triangle ABC \cong \triangle MNO$, then $\triangle MNO \cong \triangle ABC$ Transitive If $\triangle ABC \cong \triangle MNO$ and $\triangle MNO \cong \triangle XYZ$, then

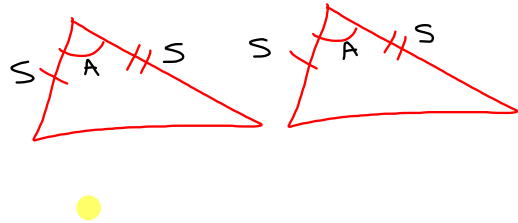
$$\triangle ABC \cong \triangle XYZ$$

4.4 SSS and SAS

Postulate 4.1--Side-Side-Side (SSS)--If 3 sides of one \triangle are congruent to 3 sides of another \triangle , then the \triangle s are congruent.



Postulate 4.2--Side-Angle-Side (SAS)--If 2 sides and the included angle of one \triangle are congruent to 2 sides and the included angle of another \triangle , then the \triangle s are congruent.



Things to keep in mind for these proofs:

Reflexive

Vertical angles are congruent

Def. of midpoint

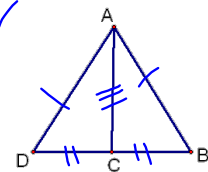
Def. of angle bisector and segment bisector

Parallel line facts

and anything else we have learned

Given: C is the midpoint of \overline{DB}
 $\overline{AD} \cong \overline{AB}$ ✓

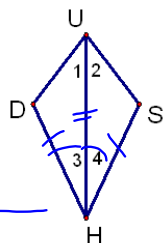
Prove: $\triangle ADC \cong \triangle ABC$



St.	Reason
① C is midpt of \overline{DB} $\overline{AD} \cong \overline{AB}$	① Given
② $\overline{DC} \cong \overline{CB}$	② Def of midpt
③ $\overline{AC} \cong \overline{AC}$	③ Reflexive
④ $\triangle ADC \cong \triangle ABC$	④ SSS

Given: \overline{HU} bisects $\angle DHS$ ✓
 $\overline{HD} \cong \overline{HS}$ ✓

Prove: $\triangle UDH \cong \triangle USH$



Statements	Reasons
① \overline{HU} bis $\angle DHS$ $\overline{HD} \cong \overline{HS}$	① Given
② $\angle 3 \cong \angle 4$	② Def of \angle Bis.
③ $\overline{UH} \cong \overline{UH}$	③ Refl.
④ $\triangle UDH \cong \triangle USH$	④ SAS

HW

P 195 #s 9-14

p. 203-205 5-8(2 column), 10, 16, 22-25